SCIENCE.—SUPPLEMENT.

FRIDAY, OCTOBER 9, 1885.

COLONIZATION IN ALGERIA.[1]

THE problem of colonization in Algeria is by no means the same as in America or Australia. In the latter countries, the native population is sparse, has no conception of the use of land for agriculture to any extent, and yields with little resistance before the advance of civilization. In Algeria, on the contrary, the natives are relatively numerous, have maintained themselves in possession of the land for centuries, often by force of arms, and, however imperfect the use they make of it, resist any encroachments upon their rights with some intelligence and a great deal of vigor.

The French government had originally no intention of colonizing Algeria, but took possession of the city of Algiers as a purely military measure. But various classes of settlers, who were entitled to French protection, continually arrived and occupied the vicinity of the city; to protect them against the marauding Arab tribes, the French generals found themselves compelled, often against their own will, to advance their lines farther and farther; and at last the government concluded definitely to hold the whole country and colonize it.

The history of the attempts at colonization since the first, in 1840, presents almost an unbroken succession of failures. Every governor-general had a theory of his own, and his first step was usually to make a clean sweep of all the arrangements of his predecessor. Marshal Valée, in imitation of the Roman military colonies, attempted to use discharged soldiers as colonists. He overlooked the fact that the ancient military colonies only flourished where the veterans succeeded in completely subjugating the former inhabitants and forcing them to work the land. The result showed how gross was his mistake in supposing that the absinthe-soaked old troopers would develop into good farmers; the 300 whom he established in 1840 at Kolea, left to a man the next year.

The next governor, Marshal Bugeand, also tried the military plan; but instead of discharged veterans, he settled soldiers who had still two years to serve, and were for that period subject to martial law. Moreover, since bachelors are not the most successful colonists, they received a three months furlough to go home and provide themselves with better-halves. The result was what might have been expected. The military colonists, hemmed in by their code of petty regulations, and prevented from anything like independent action, felt much less at ease in their settlements than in the old barrack life; and at the expiration of their time of service returned, almost without exception, to 'La Belle France.'

Besides these military attempts, some civilian settlements were founded, which promised better results. The same method had been adopted which is followed at present, and which, under the conditions which exist in Algeria, seems to be about the only one possible. The government provides a place for a village of 50 to 100 houses; it gives for each house a certain acreage of land, puts up the public buildings, provides for the water-supply and connects the village by a paved street with the main road; after this is completed, the land is parcelled out to the individual colonists, who must agree to build a stone house of certain dimensions, fence and break up the land, and set out a certain number of fruit trees. The title of possession is only provisory, and can be withdrawn if the conditions are not fulfilled; not until after a certain number of years is the title unconditional, and not until then can the land be sold.

Much has been said against this plan; but it is difficult to see how any other could be employed. It is impossible for individual enterprise to secure land for a settlement; the property-rights among the natives are in too involved a condition. Four kinds of landed property are recognized: 1st, the *Azel*, or domain-lands—property of the government, or more exactly, of the officials; 2d, the *Habbus*—property of the mosques, schools, hospitals, etc.; 3d, the *Arkh*—property of private individuals; 4th, the *Melkh*—property of families or tribes in common. The first division comprises some of the best land in the country, and there was at one time a chance to get at it for colonization; but it has now fallen into the hands of speculators, and only the forests are left for *bona fide* colonists. The *Habbus* is, of course, unavailable for colonization. The *Arkh* belongs originally to the Kabyles and Moors; the former are very reluctant to sell to foreigners, and in most places have a law which gives the next neighbor the first privilege of purchase; while such of the Moorish lands, as were saleable, have already passed into the hands of native Jews. The *Melkh* belongs to the various Arab tribes, and usually comes into

[1] From an article by Dr. W. Kobelt in *Das Ausland*.

the hands of the French government by confiscation, which the tribe suffers as the penalty of a revolt. This is practically the only land available for colonization, and it is easy enough to see that, in the presence of the revengeful Arabs, the colonies must be strong enough from the outset to protect themselves. This plan has always been expensive for the government, but a considerable number of colonies had, in some degree, succeeded during the first eight years.

In 1848, an attempt was made to settle at once some 13,500 of the unemployed workmen of Paris in Algeria. Each family received a house with a certain amount of land, stock, tools and seeds, and rations for two years. But the material was the worst possible for an agricultural colony; the workmen lived in idleness, consumed their rations, and as soon as these ceased, went back to Paris, as soon as possible. An almost identical plan was tried in 1871, with 10,000 of the discontented Alsatians, and the result was the same; in 1875 every village stood empty. From 1848 to 1871 all sorts of experiments were tried, the details of which would be tedious; the result of all was nearly or quite failure.

In 1873 a private society, the *Association protective des Alsaciens-Lorrains*, succeeded in founding three villages, which are now in a very flourishing condition. The government undertook, as usual, the works of common utility; members of the society went to Algeria and chose the sites for the villages. They required from each colonist a considerable deposit toward the general expenses of the society, and thus secured a much more thrifty class of emigrants than had figured in any former undertaking.

Besides the Alsatians, and some other Germans, a large number of Spaniards and Italians have settled in Algeria. With the increasing exportation of halfagrass from the province of Oran, there is a great demand for laborers; Kabyles enough cannot be obtained, the Arabs will do no regular work, and the French and Germans cannot endure the climate. And so natives of the south of Spain, who are accustomed to a similar climate at home, were imported. And they came to stay. They are a hard-working, sober, thrifty class of people, and after a little they usually accumulate enough to buy out some shiftless French colonist. In this way Oran and some other provinces have become almost entirely Spanish. These southern Spaniards are historically much more nearly related to the Kabyles than to the French; they do not readily assimilate with the latter; they live by themselves, and are looked on by the French with jealousy, and not without reason; for if Spain should ever get possession of Morocco, the Spanish population of Oran would probably lead to unpleasant political complications.

The French also look with a jealous eye upon the Italians, who are mostly in the eastern const-district, where they at first came on account of the fisheries. They are not so numerous as the Spaniards; in 1881 they numbered 31,000 against 112,000 Spaniards, but many of them become naturalized and are then reckoned as French.

As to the French themselves, many of them have been successful colonists, both individually and in societies; but there is a continual drawback upon their success in the shape of the worthless character of many of the emigrants. There seems to be a general mistrust of foreigners among all the French in Algeria, from the Governor-general down to the poorest emigrant; and in the distribution of the colonial privileges, they proceed on the principle that the worst kind of a Frenchman is to be preferred to the best man of any other nation. The result is that not only all the public offices—and in the usual French fashion, their name is legion—are occupied by Frenchmen, but the best lands are often assigned to people who have no intention of thoroughly working them; they fulfil the letter of the conditions with as little labor as possible, let the land on shares to a native who works it in his own primitive way, and as soon as they have acquired a clear title, sell the land immediately, and go and repeat the experiment in another place. As in our own western states, an unscrupulous 'colonist' can often 'pre-empt' in several places at the same time. Of course the officials are aware of this state of things, but in the lack of good French colonists they have felt themselves often compelled to wink at it, even if it should happen to go against their easy French consciences. But they are only putting off the question; at the sale of the above-mentioned land, it goes, sometimes directly, sometimes after some handling by speculators, to men who intend to make good use of it, whatever their nationality; and these are quite likely to be either other Europeans or Kabyles. The latter are not to be confounded with the Arabs, who are born nomads and yield before civilization; they are accustomed to town life, take kindly to improvements, send their children to school with great eagerness, work hard and save their earnings. The great objection to them on the part of the French is that they have a too well-defined sense of their own personal and political rights, look upon the French as usurpers, and will have nothing to do with them unless it is absolutely necessary. They are constantly learning better to know their own strength, and may, not far in the future, give the French a serious problem to handle.

Since 1881 a new aspect of affairs has appeared through the wine industry. The culture of the vine, after some partial failures on account of lack of experience with the different climatic and other conditions, is now an undoubted success; and it comes just at a time when the vine-growers in the south of France are beginning to despair of conquering the insect pests which are destroying their vines. Accordingly, large numbers of them have emigrated, and their capital and good-will have given a large impetus to the French colonization of Algeria. It is also found that the olive flourishes exceedingly well, and the prospect for the financial success of the colony is at last brighter. The government has spent, from first to last, an enormous sum of money upon Algeria; the railways, roads and other conveniences for travelling are in better condition than in Italy; and with the present good outlook in wine, oil and grain growing, it appears as if Algeria were to have an important future. Whether France will ever reap the result of her efforts there, or some other nation step in in her place, or even an independent state arise there, time alone will tell.

RECENT GRAVITY DETERMINATIONS IN AND NEAR JAPAN.

IN the year 1880 Professor Mendenhall, then professor of physics in the University of Tokio, made a determination of the force of gravity at that place, using a 'Borda's pendulum,' and comparing its measuring-rod with a meter, in the possession of the Japanese treasury department, which was a certified copy of the standard at the Conservatoire des arts et metiers. The determination was thus an absolute one, and, from the circumstances under which it was made, it would seem probable that the resulting value of g, 9.7984m, must be very near the truth. This is very slightly in excess of the values given by the formulæ generally accepted as best representing g for any latitude, as deduced from a large number of determinations on different parts of the globe.

Since 1880 several of Professor Mendenhall's pupils, in the department of physics (notably Mr. Tanakadate, now assistant to the professor of physics), have made determinations of g at four places in and near Japan, swinging two or three 'invariable' pendulums, in each case first at Tokio, then at the station in question, and again at Tokio, and they furnish very accurate relative values of the force of gravity at all these places. The results have been published in a series of three appendices to No. 5 of the *Memoirs of the science department of Tokio daigaku*, which contained Professor Mendenhall's work.

The most recent one is of unusual interest, for in it is the result of a determination of g at the Bonin islands, which lie out in the Pacific five or six hundred miles south-east of the coast of Japan, and which have for a half-century been of note among geodesists, as the place where the force of gravity is most in excess of the normal value of any thus far observed.

In the years 1826–9 Captain Leutke, in command of a Russian expedition, visited these islands and determined the value of g to be about 0.0025m larger than the normal value, which will be, perhaps, better appreciated by saying that it indicated that a seconds-pendulum would vibrate there about 11 sec. per day faster than at the same latitude in most parts of the earth. This value has always been considered as abnormal, and generally left out in any discussion of the figure of the earth from gravity determinations. The interest attaching to the last determination by Mr. Tanakadate lies in the fact that, if Professor Mendenhall's value of g for Tokio is nearly correct, then at present it is even more in excess at the Bonin islands than deduced by Captain Leutke; the last result giving about 0.0034m over the normal value of g, or a gain 15 sec. per day in a seconds-pendulum.

The whole result of the measurements on this part of the globe, thus far published, is best shown in the following table, which shows the date, place, latitude, observers, and the correction which the observations give to the value of g, as deduced from the mean of Everett's, Listing's and Herschel's formulæ which are closely accordant. In the final column is the corresponding gain in seconds per day, of a pendulum, which, with the normal value of g given by the formulæ, would vibrate 86,400 times per day at each place.

Date.	Place.	Latitude.	Observers.	Excess of gravity.	
		° ′		m.	sec.
1826–9	Ogasawarajima, Bonin Islands.	+27 4	Leutke	+0.0025	+10.9
1880	Tokio, Nippon.	+35 41	Mendenhall	+0.0003	+ 1.3
1881	Sapporo, Yesso.	+43 4	Tanakadate Fujisawa and Tanaka	+0.0007	+ 3.1
1882	Kagoshima, Kiu-shiu.	+31 25	Tanakadate Sakai and Yamaguchi	+0.0007	+ 3.1
1882	Naha, Liu-kiu Islands.	+26 12	Tanakadate Sakai and Yamaguchi	+0.0010	+ 4.4
1884	Ogasawarajima, Bonin Islands.	+27 4	Tanakadate and Sawai	+0.0034	+14.9

Mr. Edwin Smith, of the coast survey, and Professor H. S. Pritchett, of the Washington univer-

sity, St. Louis, who constituted the transit-of-Venus party in New Zealand in 1882, carried on, under the auspices of the coast survey, a series of gravity determinations after the transit of Venus was over, swinging pendulums—the same that had been used by Major Herschel in India, England and America—in New Zealand and Australia, at Singapore, Tokio, San Francisco and Washington.

This series served the valuable purpose of connecting together, differentially, several independent systems of gravity determinations, and when finally reduced may slightly change Professor Mendenhall's Tokio value, but is not likely to alter it materially. It is of some importance to note that, of the determinations in the vicinity of Japan, the excess at Tokio is the smallest; those at Sapporo and Kagoshima, near the northern and southern extremities of the principal Japanese islands, come next; that at Naha, out in the ocean off the Chinese coast, is still larger; while the Bonin islands, well out in the Pacific, give the greatest excess yet observed. The value coming nearest to this was also determined by Captain Leutke at Ualan, one of the most south-eastern of the Caroline group of islands, and about 5° north of the equator. It would certainly be well to reoccupy this and others of Captain Leutke's stations, in order to determine whether these abnormal values of g may be actually increasing in the Pacific.

The eclipse party, under Professor Holden, to Caroline island, 10° south of the equator and in mid-Pacific, also made, under the auspices of the coast survey, pendulum observations there, and at Honolulu and San Francisco. These results, together with those of Messrs. Smith and Pritchett will be awaited with interest.

The more we study our globe the more irregular do we find it in figure and density; and it is evident that such work as that inaugurated by Professor Mendenhall at Tokio, and that prosecuted of late years by the coast survey in all parts of the globe—where it could be economically done in connection with other necessary scientific work—is among the most important of modern contributions to our knowledge of the figure and dimensions of the earth, and is a class of work which must be carried out in connection with triangulation and astronomical determinations of latitude and longitude, before we can be at all sure that we know with sufficient precision the average value of the earth's radius, which is the unit of length or base line from which we strike out from the earth into celestial spaces, and upon which all our values of planetary and stellar distances depend.

H. M. Paul.

GEOLOGICAL CHANGES IN NEW SOUTH WALES.[1]

From the close of the Pleistocene period to present times the main physical features of New South Wales have remained pretty constant. In the Carboniferous period a large part of the country was a stretch of ocean, the New England mountains being but little older. The last main elevation occurred early in Mesozoic times, and from that time to the Pleistocene period unceasing atmospheric denuding, faultings and volcanic eruptions have been at work shaping the country into valleys and hills. The Pleistocene deposits are indicated by vast accumulations of drift and diluvial sediment derived from the erosion of the deep valleys in the highlands when the rainfall was greater than at present. That the rainfall in this period was much greater than it has since been is proved by the evidence of great erosion in the highlands.

The cause of this interesting pluvial period over a large portion of the southern hemisphere—for its effects have been observed in New Zealand, South America and South Africa—is directly connected with the Glacial period of the northern hemisphere. While the northern winter was so long and cold as to induce a large accumulation of snow and ice, that of the opposite hemisphere was short and mild with long and cool summers. There was a perpetual spring in the southern lands. When the alternation took place, 10,500 years after, the Antarctic ice was so extended as to produce on a larger scale and nearer to the Australian continent, the fogs, rain and snowstorms which now prevail in the Antarctic ocean. The present glaciated condition of the Antarctic regions being due to the winter of the southern hemisphere being in aphelion, it may readily be perceived how these conditions must have been intensified in the Pleistocene period when the eccentricity was three and a half times greater than it now is. It is also thought that owing to the extreme difference between the temperature of the south pole and that of the tropics, the south-east trade winds would blow with a greater force over a larger area, and so the upper counter trades would return more heavily laden with moisture.

In the highest Australian mountain, Mount Kosciusko, Dr. R. von Lendenfeld has recently found proof of former glacial action. Traces of glacial action were not seen lower than 5,800 feet above the sea, and they did not cover an area of more than 150 square miles. No glaciers exist there now; but patches of snow lie on the sheltered slopes and never disappear. It is interesting

[1] Extract from President C. S. Wilkinson's address before the annual meeting of the Linnean society of New South Wales, January 28, 1885.

to know that patches of eternal snow are here found in a latitude of 37° S., about 1,500 feet lower than in the European Alps in a latitude of 47° N. In Australia the snow comes as far down in 37° as in Europe in 52°. In New Zealand the snow and ice are much more extensive than in Europe at a similar latitude. This proves that the southern hemisphere is colder and damper than the northern.

The fossil remains furnish much evidence regarding the changes of climate from time to time. The fossil plants of the Pliocene indicate a much warmer climate, more humid and equable than the periods following. The sudden banishment of this semi-tropical flora shows that a great climatic change must have supervened in post-Pliocene times, due no doubt to the glaciation of the southern regions. A small pine (Pherosphœra) intermediate between a Lycopodium and a juniper is still found in one locality adhering to the cold, shady, constantly wet cliffs near the falls at Katoomba, on the Blue Mountain. This is a Tasmanian genus and is a remnant of the flora which succeeded the semi-tropical pliocene vegetation.

Much more conclusive evidence of such a change is furnished by the remains of extinct animals, which now live only in Tasmania, where the mean annual temperature is 7° lower than in the locality where these remains are now found. The Pleistocene inhabitants of New South Wales included many remarkable animals. There were the huge carnivorous pouched lion (Thylacoleo); diprotodon, an animal holding the same place amongst the Australian mammals that the pachyderms do amongst the fauna of other continents; the nototherium, another large herbiverous animal; the very large horned lizard, megalania; and the flesh-eating notiosaurus. The kangaroos, wombats and echinids attained far larger dimensions than at present, and the remains of crocodiles have also been found. Wherever the soil was favorable the country must have been covered with a rich vegetation for the support of this army of herbivores. The precise character of the flora cannot yet be determined; but this much is certain, that these gigantic animals have been extirpated by some means or other. Sir Richard Owen suggests that man was the cause, but of this there is no conclusive proof. On the other hand, striking evidence has been afforded by the dryness of the last few seasons, of how quickly, through want of rain, savannahs of waving grass may be converted into desert-like plains; and the immediate influence of these climatal changes on the fauna is fully attested by the numbers of kangaroos and emus which died last year through want of sustenance on the western plains.

Fragments of bones of the extinct mammalia are met with in the gravels and clays at a depth of over seventy feet from the surface, and their occurrence in such quantities and variety seems to point to a scarcity of water which would alone bring so heterogeneous an assemblage of animals together. The occurrence of remains of the crocodile attests to a previous abundance of water. Stinted in food supplies and unable, because of their great bulk, to migrate rapidly or adapt themselves readily to the altered conditions of life, diprotodon and the other large herbivores perished by degrees from the combined effects of want of sustenance, the raids of predatory beasts, and possibly the attacks of man. The last terrible struggle for existence as the supply of water failed, must have been beyond description. Now none of this vast horde remains; but their likeness may still be traced in the native bear, wombat, kangaroo, etc., which still survive on the mountain ranges and plains as the comparatively pigmy types of their gigantic predecessors.

A CONVENIENT SYSTEM OF RIVER NOMENCLATURE.

Every tyro in geography has learned that the Mattapony and Pamunkey are the two streams that flow into the head of the so-called York river, which is simply an estuary of Chesapeake bay; but few, I imagine, have ever been told how the first of the above names is compounded, since its tributaries are too small to be named on ordinary school maps.

A few weeks since, on approaching, the sources of the Mattapony from the north I was a little surprised at hearing the inhabitants place the accent on the last syllable in pronouncing it. Presently, coming to a brisk little mill stream and inquiring its name, I was informed that it was the *Ny* river. Soon crossing a second of about the same size, I learned that this was the *Po*. Still a third was passed not long after and this rejoiced in the name of *Ta*. Turning to the eastward soon after crossing the Ta, and proceeding some distance down the course of the river system to below the union of all three of these tributaries and crossing back over the combined stream, this was found on inquiry to be the *Tapony*. At last the mouth of the Mat was passed, only below which the river is recognized as the Mattapony. Between the junction of the Ny and the Po and above the confluence of the Ta it is said to be known as the *Pony*, although this particular portion was not traversed and this name not heard used by the in-

habitants. The system of nomenclature is, therefore, complete and symmetrical.

It is due to the people living among these streams to say that they all understand perfectly, and fully appreciate this system of naming, and, indeed, seem proud of it and anxious to explain it to strangers. So extremely simple is it that even the negro hands use it with perfect accuracy.

It occurred to me that this case might furnish a valuable suggestion to geographical explorers who are constantly called upon to give names to unknown water courses. If, instead of assigning polysyllabic names to all streams, which must be learned by the public as so many independent facts, they would use monosyllabic names for the ultimate tributaries, capable of easy composition with one another, and then designate the successive trunks formed by these tributaries by the compound word formed by their names, a rational system of nomenclature would result which would unite any river system practically under a single name, and still leave not only every tributary but every part of the main stream with a distinctive appellation. I merely throw out the suggestion without attempting here to specify such practical limitations to the general principle as will naturally occur to geographers who might contemplate its actual adoption. LESTER F. WARD.

RACIAL CHARACTERISTICS OF JEWS.

The Journal of the Anthropological institute of Great Britain for August brings a discussion on Jewish race characteristics of somewhat unusual interest. The question itself is not a new one, but the mode of presenting it is. The fundamental question involved is: "Is the race of modern Jews a pure one or not?" Hitherto the historical aspect of the problem has almost exclusively been considered in the present discussion. Mr. Joseph Jacobs, B. A., shows that anthropology and anthropometry have a distinct voice in the matter. His paper is equally valuable for the information he sets before us, as for its bearing on the ultimate question.

Mr. Jacobs argues thus: Apart from the historical record of intermixture with foreign people, an indication of the pure or wild origin of the race ought to be attainable from the study of the physiological and psychological traits of the Jews of today. These traits would be included in their (1) *vital statistics* and in their (2) *anthropometry*, or bodily measurement. Having determined in what ways they differ from their neighbors in the above respects, we are met by the important but intricate problem with which Mr. Galton has familiarized the public,—Do these peculiarities point to a racial or a social cause? are they due to differences of 'nature' or of 'nurture?'

There are now living about 7,000,000 Jews; (*a*)[1] 98.9% of these are Jews both by birth and by religion; (*b*) 1.1% are Jews by religion only, and (*c*) 2% by birth only. The last two classes are important anthropologically, but reliable information about them is wanting. In the Jew whom we know, racial and social influences have been working hand in hand, and the problem of separating them is unusually difficult.

From his former studies, Mr. Jacobs takes the following statements: 1. Jews have a less marriage rate, less birth rate (both due largely to the less mortality of Jewish children) and less death rate than their neighbors. 2. They marry earlier. Cousins intermarry more frequently, perhaps three times as often. 3. Jews have larger families, though fewer plural births. Mixed marriages with foreign races are comparatively unfertile. 4. Among Jews male births are more frequent, still births and illegitimate births less frequent than in the average population. (Amongst the illegitimate births the proportion of still-births is not less.) 5. Jews have a smaller mortality of children under five. (Not true of Jewish illegitimate children.) Deaths over 60 are more frequent; suicides are less frequent than normally. 6. Their claim to immunity from certain diseases (phthisis, cholera) is doubtful. They are apparently more liable to diabetes and haemorrhoids, and have proportionately more insane, deaf mutes, blind and color-blind. 7. A vast majority live in cities. They have a larger ratio of poor.

Many of these divergences are evidently of social origin, such as the frequency of consanguineous marriages, the smaller proportion of suicides and of illegitimate births. Moreover, the fact that the illegitimate do not share the advantages speaks for the importance of social influences. There remain as probably racial only four biostatical points. These are 1. the less number of twins and triplets; 2. the infertility of mixed marriages; 3. the greater longevity of Jews; 4. their alleged special liability to disease. Of the causes of (1) we know nothing; (2) is of sufficient importance to merit a review of the evidence on which it rests. In Prussia between 1875 and 1881, 1,676 such mixed marriages resulted in 2,765 children, an average of 1.65 per marriage; while the average for pure Jewish marriages was 4.41,—*nearly three times as great*. In Bavaria (1876–80) 67 such marriages showed an average of 1.1 against 4.7 for pure Jewish mar-

[1] This class is formed of (1) *Ashkenazim* or German-Polish Jews, forming 92.8% of the whole, and (2) *Sephardim* or Spanish-Portuguese Jews 6.1%.

riages. The statistics of sterility show a similar result.

The evidence for the greater longevity of Jews is not so unequivocal as is usually supposed. Their insanitary mode of life,[1] weak constitution, greater proportion of men unfit for military service, would not indicate any such advantage. Social influneces favoring longevity are their pursuit of rather long-lived trades (tailoring excepted); greater care of Jewish women; the tranquilizing effect of their religion and family life, and so on. Mr. Jacobs does not lay much importance on the effect of the observance of the dietary laws. They do not secure immunity from disease. Finally, their liability to special diseases requires further evidence. Keeping in mind the reciprocal influence between nature and nurture, we can conclude that the biostatical peculiarities of Jews are social, and only secondarily racial, and 'cannot therefore be adduced to show common origin.' If by 'Jewish' we mean properties due to origin, and by 'Judaic' those due to religion and custom, then their biostatics is Judaic, not Jewish.

COMPOSITE FROM FIVE PHOTOGRAPHS OF JEWISH BOYS.

THE FIVE COMPONENTS OF THE ABOVE COMPOSITE.

Jews are shortest and narrowest of Europeans (Moyars perhaps are shorter). Their height is 5 ft. 4 in.; girth 31.6 inches. The importance of social influences is seen in the measurement of 130 English Jews of the better class, whose average height was 5 ft. 7 in., and girth 35.2 inches. As to shape of head they are brachycephalic, or short-headed, the cephalic index being 83.4. They have fewer blue and gray-eyed individuals, and more brown and dark-eyed, than their Teutonic neighbors. So also their hair and skin are darker. The statistics on color-blindness are unanimous, making three Jewish children so afflicted where only two would be found in other races. The common notion as to length of nose is supported by measurements, while that of the thickness of the lips is not.

At the instance of Mr. Jacobs, photographs of boys from the Hebrew free school of London were taken with almost no selection, and from these Mr. Galton prepared composites according to his well-known process. 'They were children of poor parents, dirty little fellows individually, but wonderfully beautiful as I think in the composites,' says Mr. Galton. He adds that they are the best specimens of a composite that he has ever produced. There are two sets of the composites, one giving full face, the other profile views. Two groups of five separate photographs accompany the composites, as also a co-composite of the two composites thus formed. A fourth composite formed from photographs of Jewish young men is also given. The printing of the components along with the composites makes this contribution to composite photography especially valuable. Of the faithfulness with which they portray the Jewish type there is no doubt. An artist found in one of them a realization of his ideal of Spinoza when a lad. Mr. Jacobs thinks that here we have the nearest representation of the lad Samuel, or the youthful David. He also identifies the features of the captive Jews of Lachish in the Assyrian *bas relief* (B. C. 701) with the modern features, thus showing the persistency of the Jewish type. 'If these Jewish lads, selected almost at random and with parents from opposite parts of Europe, yield so markedly individual a type, it

[1] Particular reference is here made to their overcrowded life in Ghetti, where 266 houses averaged 29.8 persons per house.

can only be because there actually exists a definite and well-defined organic type of modern Jews.'

A few words as to the characteristics of the face. It is not so much the common notion of the length of nose, as the flexibility of the nostrils that is Jewish; the mouth is large 'with ends well marked and pouting underlip, heavy chin and broad forehead;' 'large brilliant eyes set closely together, with heavy upper and protuberant lower lid, having athoughtful expression in youth, transformed into a keen and penetrating gaze by manhood.'

Considering the question historically, Mr. Jacobs in opposition to Dr. Neubauer whose paper was read just before his own, as also to Renan, holds that the evidence shows in favor of the purity of the race. The main points are these: The foreign element due to proselytism has been exaggerated through neglect of the consideration that only one small class of these—the Proselytes of righteousness had the full *jus connubii*. The strong penalty attached to such marriages in early days, the seclusion in ghettos, the natural aversion on both sides, the existence of the *Cobanim* (about 5% of all the Jews) who could not marry outside the race at all, all tend to reduce the foreign element considerably. Again, in all species the male varies more than the female; when this occurs we probably have a species. Jewesses do vary very slightly as compared with Jews. (Mr. Jacobs suggests a composite of Jewesses). Finally, granted that a certain foreign element is mingled with the race, even as much as 1-10 of the whole number; then owing to the difference in fertility of mixed and purely Jewish marriages, at the end of 200 years the 1-10 would have diminished to 1-50; where the tendency of reversion to the Jewish type has yet to be taken into account. For all these reasons the long-standing belief in the substantial purity of the Jewish race may hold its ground. J. J.

REFORM IN OUR CALENDAR.

In *l'Astronomie* for August, M. Jules Bonjean discusses proposed changes in our method of reckoning time which would be advantageous. He would leave the seven-day week and the 365 or 366-day year of the Gregorian calendar as they are now; but he takes strong ground—and in this all can sympathize with him—against the present arbitrary and inconvenient grouping of days into months. He would reform it by making January have 30 days, February 31, March 30, and so alternating through the year till December, this month having 30 days in the ordinary year of 365, and 31 in leap year. No one can dispute the much greater simplicity and convenience of this. Then he would always have the year begin on Sunday, and in consequence have an extra Sunday, or a holiday, for the 365th day, and in leap year two of them. He argues in favor of thus having the same day of any particular month always come on the same day of the week, and also having an extra day—and, once in four years, two—come during the world-wide period of festivities attending the Christmas and New-year holidays. There can be no question that some such plan would possess many advantages over the present arrangement. Of course it does away with the week as a continuously periodic measure of time, but practically it is never used for that either in civil or astronomical reckoning, but simply for the temporarily recurring period of rest or religious observances, and for this a break once per year is of no importance.

There is one point, however, in which it seems, to the writer, that M. Bonjean's plan might be slightly improved. Respect for religious observances would, no doubt, demand, throughout the greater part of the civilized world, that there should be 52 Sabbaths in the year; and such observance of Sunday as the first day of the year might clash with the peculiar social or civil ceremonies which either already, or in future might, very appropriately belong to the opening day of the new year. It would seem more appropriate to have New-year's day a world-wide holiday, to be celebrated by each nation as suited it the best, and then let Sunday, the New-year Sabbath, fall on January 2. The relative merits of the two plans are best seen below, where the 12 or 13 days at the end of the old and at the beginning of the new years are arranged with the two plans side by side, the two middle columns of dates referring to either one:

	Bonjean's Plan.	Day of the year.	Day of the Month.	2d Proposed Plan.	
Holiday season.	Saturday	357	Dec. 22	Friday	
	Sunday	358	" 23	Saturday } Christmas.	
	Monday	359	" 24	*Sunday* }	
	Tuesday	360	" 25	Monday	
	Wednesday	361	" 26	Tuesday	
	Thursday	362	" 27	Wednesday	
	Friday	363	" 28	Thursday	
	Saturday	364	" 29	Friday	
	Annual holiday	365	" 30	Saturday	
	Leap-year holiday	366	" 31	Leap-year holiday	Holiday season.
	Sunday and New-year day	1	Jan. 1	New-year holiday	
	Monday, 1st business day	2	" 2	*Sunday*, New-year Sabbath	
	Tuesday	3	" 3	Monday, 1st business day	

With such a change in the calendar we can have a regular annual Christmas Saturday, Sunday, and Monday. Saturday for shopping, Sunday for the churches, and Monday for Christmas trees and giving of presents. Our own national holidays of February 22 and July 4 would fall, in M. Bonjean's plan, on Tuesday and Thursday respectively, and in the second plan upon Monday and Wednesday. H. M. Paul.